# MacArthur Documenting Learning
# Chicago Meeting 10/21 - 10/22/11, Notes[1]

**P4** Introduction, Discusses meeting agenda for the day

**P13** provides overview of project

**P7** provides further background intro

## Participant Introductions

**P4** asks participants to discuss their relationship to the topic of challenges and strategies to "documenting and assessing learning in less structured, less predictable, more informal settings involving new media and new technologies"

**P4** intro
Quest Atlantis research in extended day program in charter school
How can you document and assess unpredictable learning? What are the implications of the fact that more people in general want to learn in more self directed kinds of settings with less formally imposed, standardized curriculum and goals?

**P10** intro

**P1** Introduction: Coming from a design perspective. Focus on designing activities out of school

**P11** intro
- learners being able to "leave their imprint" on the learning materials and activities that they engage with, and with being able to show how this can be shown as "representative of learning."
- not stealth assessment in the sense that learners are unaware of that they are being assessed, but including assessments in activities that the learners "are fighting to claim to get . . . embedded assessment that's revealing to the kids."
- "Redefine what counts as valuable . . . [for researchers, participants, and practitioners] to be able to justify that [they] are succeeding on [their] own terms, in [their] own context

**P8** introduction
- "What it means to be literate . . . Kids need to be literate in a different way."
- YouMedia Project design experiment. Now struggling with the reality of moving from one YouMedia site to 30 sites over two years: this assumes that "there is an understanding of what works in new media in a way that can be articulated and translated across the city," but doesn't grasp the context of the sole YouMedia site as a place accessible through multiple forms of public transportation, bringing in learners from all parts of the city. How to help people understand that this is constantly a design experiment"
- The importance of taking a long-term perspective, of doing this work

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[1] This report of the meeting is based on notes taken by **P10**, **P6**, and P2 during the meetings, and triangulated with video taken by **P10**.

longitudinally when one can't know the outcomes for years.
- Addressing the "inability to understand . . . online and in person" in the context of a space like YouMedia were kids may be doing both simultaneously. Year 3, study done by Chicago Consortium

<mark>10 MINUTE BREAK</mark>

**P3** introduction
- Focus on game design in formal and informal settings from the perspective of social, cultural, and affective factors. Longitudinal work from middle school through college.
- Teaching kids game design (Broolyn Schools).
- Embedded assessment in games to assess self-regulation, learning styles.
- "Learning mechanics"
- "Assessment mechanics"

**P2** introduction
- how kids learn in multiple settings

**P6** introduction
- focus on learning in after-school spaces

**P9** adds to DJ, **P6** intros:
- YouSTE(A)M

**P12** introduction
- Focus on the inseparability of learning and social positioning particularly as processes that happen across trajectories of events.
- Current work: relationship of demographic shifts in Mexican immigrant communities and changes in identity. Method: video ethnography.
- Questions concerning the unit of assessment. If learning is a process that unfolds across events, what are the consistent features across those events?
- Critique of practice based account of learning (communities of practice): based on a concept of culture as static, but cultures are "more flows and circulations, not bound entities." "If we're going to redefine learning as a matter of being able to do something in practice, then assessment is a matter understanding how it is that people change their ability to participate in practice, then how do we define practice if a practice can't be something that's shared within a bounded group of people who all do the same thing consistently?"

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**P13** introduction
- Focus on how it is that "in local practice people orient to who knows what, and how that orientation shapes the goals at the enactment of process in that group." This research interest for **P13** is grounded in the idea that "language instinct is assessment instinct." Explored these question through ethnography of differences in knowing across home, church, and school.

**P5** introduction
- Focus on new literacy practices, particularly on temporal and (geographically) distributed dimensions of learning. Project examining North African immigrants in Europe using media to connect to home country, looking at relationship of lived and virtual spaces across time. Second project examining embodiment in learning: spatial cognition in different professions and taking insights from this work to look at learning in out of school environments and address the ways that learning is impacted given the way that school stabilizes and disembodies learning.
- "What assessment doesn't measure particularly around engagement and . . . affective intensities . . . what is it that we're measuring or understanding by somebody's complete involvement in something . . . why would it be that most of our

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means of assessment seem to miss most of what people are doing?"

**P9** introduction
- Learning as a member's phenomenon (Saxe). There is endogenous evidence in interactions themselves by which people are making assessments that learning has begin and that it has terminated successfully.
- Made decision that he was going to "stop only studying things that were relevant to the authorities funding me and start studying things that were demonstrably consequential."
- Studies of how families handle money.
- Document learning in kids playing video games in natural contexts. Motivated by the fact that kids' cultures are organized around these activities.
- YouSTEAM project
- Project examining of how families understand heating, cooling, and energy via method of augmenting homes with existing temp control systems with game-like tablet interface that disrupts their own understandings and actual practices.

## **P4 introduces Springboard Questions**

- Issues of embedded, integrated assessment, self-documenting activity: "blending more fully together what seems a more natural way once you're outside of school the activities that support learning . . . and that provide information about what's being learned and see those as more the same or compound and complex activities rather than separate activities."
- accounting for the fact that activities that we study in informal settings are less structured than school. They have in common the fact that "their outcomes include significant unpredicted outcomes . . . kids are learning things completely different than we intended them to learn but are still valuable. How do you assess learning when the outcomes are unpredictable? . . . and valued by whose criteria."
- the extended unit of assessment: learning as a process that takes place over time.

## **P10 provides summary of first MacDoc Meeting**
- Unit of Assessment: activity system over time
- Defining informal learning
- Issues of Documentation

**P4** presents questions motivated by Gee & Shaffer, and Open Badges readings

- Gee and Mislevy collaboration and how it motivated Gee's current thinking about how games embody a theory of learning and if games embody a good theory of assessment: games providing an integral form of assessment in that in order to get to the next level of the game you have to  have achieved certain things and so in some sense  there is both a self-demonstrating assessment and also a predictive or projective assessment in that the player is then ready for the demands that the game will place on the player.

- Shaffer epistemic games: model "how does player's performance compare to the experts"

- Gee & Shaffer argument: 21st century skills are not being measured by traditional assessments and games give us a way to do this.

**P4**'s questions:
- Are there NEW 21st Century skills? Multitasking? Multimodal Literacies?
- Is learning primarily problem-solving? Is ALL learning problem solving?
- Can integrated assessment in games include valued outcomes not anticipated by

designers?
- How can documentation of learning for assessment purposes both be comprehensive enough to be re-assessable by divergent criteria AND specific enough to provide actionable and consequential measures? Actionable in the sense that the assessment is useful feedback for the learner and/or teacher and consequential in the sense that you get some social benefit out of it.

The tension in measuring learning by comparing performances to expert performances. Do these kinds of measures promote creativity and innovation?


**General group discussion begins.**

**P11**: - brings up the issue of agency in informal activities. Describes the activities that members in the group design and implement provide "invitations . . . that require some level of agency to the staff . . . and the player in relation to the performance that the curriculum is asking them . . . how do we bring [agency] into assessment when often that is all gone: 'now you're going to sit in my criteria and play by my rules for me'
- Proposes coming up with assumptions that need to remain embedded for conducting meaningful assessment.
0 Notes that the kinds of activities that members of the group design "will never end up in the educational clearinghouse because they're begging for diverse implementation which is  antithetical to that whole model."

**P4**: **Do we believe that more agency, more opportunity for students to take their own path potentially gives us better data, more reliable conclusions about what they learn about what they learn after they engage in the activity.**

**P11**: Clarifies his conception of agency: "Agency and positioning together" as the ways that the learner thinks about how s/he is approaching the task and what that will allow the learner to reveal or not.

**P4**: **Further clarifies: 1. Agency in terms of more choice, alternative pathways 2. Agency in the sense of power: "relative positioning to the system in and through which you're learning." This relates to the notion that the learners should leave an imprint on the learning activity, that the activity should change as a result of the learner having "passed through it." The learner as co-designer. How do we assess this kind of learning?**


**P11**: Wants assessment embedded in the activity to be meaningful to the learner in that it gives the learner more power to do more things in the activity

**P9**: Agrees with the idea that voluntary participation and commitment in the activity does give us better data.

**P4**: This also motivates data about other forms of learning

**P8**: YouMedia example. Kid who does different things everyday in an a relatively "stable" environment. How do we assess what they're doing if they show up every day but only check out a laptop twice? How do we determine if learning is occurring? Should we make hanging out "cost"?

**P4**: unit of assessment question: commitment to what? to coming to the center? to being with friends? to using technologies? to this line of learning? Levels of commitment?


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**P8**: And this can vary from day to day

**P9**: "If you don't go from hanging out to geeking out, something's not happening.

**P13**: **What is it that makes one particular experience link to another activity? If learning is unbounded across time and contexts, what is it that unifies experiences into learning? What features, hooks allow us to see the connections between experiences?**
**It has something to do with aesthetics**

**P11**: We need to design environments that provide sufficient invitations  lying around to bring them  into trajectories that offer more.
**P9**: Is the design faulty? E.G. are the power differentials overwhelming

**P4**: **How do you think about the "corralling problem"? You provide a lot of opportunities and you would like it to all add up to something: the balance problem - do what you like (agency) vs. structure.**
Open in the beginning then narrow it down?
**P11**: Melissa Gresalfi notion of strong opportunities & weak opportunities. Strong: overly defined structure. Weak: force you to engage in "perception-action loops that uncover more opportunity to demonstrate competence."

**P12**: Related to integrated assessment and the unanticipated question; when you prescribe certain valued activities or behaviors within an activity or game the tendency is for the learner to focus on those prescribed actions because they will be useful to them in the future participation in the activity or game. There needs to be a balance between structure and openness

**P3**: You can do both: Start with the structure where you learn the basics of the games - so that it guides you without choice until you do have choice.

**P8**: Annette Lareau Unequal Childhoods: how middle class kids are put in environments where they learn to how expect opportunities based on  experiences. They learn to structure their interactions based on these experiences. Summits 100 kids in Chicago; what they wanted in after-school opportunities in the city. How access the opportunities that were already out there. Lot of programs that existed, when you ask them how they get to those opportunities, they didn't know.
**ASSUMPTION: Given a variety of choices kids know what resources are available and how to access them. How then do we promote available resources in a way that signals to the kids what resources are available and when and how to access and use them?**

**P4**: Agrees with **P8**.  Adds that it is also important to help learners understand how to use these resources once they have identified them.
**- Tension: between letting people discover their own way (middle class) vs. showing you how you can do something. One size does not fit all.**
**- Key concern: not just with what engages people effectively in a learning environment. but what does this then tell us about what has been learned.**
**- Links the above tension with the earlier discussion concerning the structure of activity:**
**1. P3's example of games that have structure at first that teaches players to use the relevant tools and then giving that learner the opportunity to apply this learning freely.**
**vs.**
**2. Provide all the tools first and let the learner explore and play with them.**
**These imply two different kinds of assessment strategies.**

**P9**: TENSION - documenting learning for whom and whose documentation is it? Endogenous Assessment vs. someone else's assessment. What is the hidden agent of

assessment?
How different is the Gee & Shaffer argument from the example of Cognitive Tutors (Carnegie Mellon)?

**P11**: NSF Adaptive learning workshop: view at this workshop was solely organized around a cognitive model, ignored positioning and agency.

**P4**: **Assessment for whom, Documentation for whom, Activities designed to provide documentation, and what are the possible "whose purposes" and then you work your design logic backwards. E.G. if the purpose is to provide certification to prospective employers that the learner can do calculus and engineering, then what kind of assessment provides certification of activities provide the documentation that affords this assessment? What Activities have inherited this paradigm, given its dominance over time?**
**- What would be different instead if the "for whom" is the learner or the specialist community that the learner wants to join? How then "is the kind of documentation or evidence for that different, and the kind of learning activity that provides that documentation different than the one that is trying to provide the evidence chain for the larger society's standardized curriculum goals?"**

**P5**: References a talk by Henry Jenkins. **Worries over terms like "skills," and the notion of unanticipated outcomes. What do we mean by learning? Individual and systems learning? Notes the tendency to try and remove the individual when we look at systems of distributed learning.**
**- Example of online social networks. Over time the system changes and learns and re-positioning of individuals in this network (learning) is part of this process. Also the learning of the individuals becomes distributed so tat talk of individual 21st century skills is suspect.**

**P9**: Different segments of society are driven by a need to focus on the individual. Schools are, but, for example, teams of architects are not.

**P12**: Seeks to clarify what **P9** is saying: it's not that a cognitive theory of learning is wrong, that in certain institutional contexts it accurately describes what people do?
**P9**: It's that these theories are made more real in some contexts over others.
**P12**: So the next step would be to make up different kinds of contexts? Schools are drowning in quantitative data and they have no concept of what to do. How about building a system that gives learner's access to data so they can sort out for themselves what to focus on with respect to assessment, and make decisions on how to proceed based on this data.
**P4**: mentions existing project that meets this criteria.

**P9**: Political economy assessment - standardized assessment was originally framed (SJ Gould, Mismeasure of Man) as a means to help those who did badly, as a diagnostic tool.

**P4**: Assessment models:
- self-assessment paradigm (the kind done as part of successful everyday activity)
- invisible assessment (embedded): you are not aware that it is taking place.
- visible assessment feedback useful to the learner primarily
- assessment of what you are doing by other people, for other people (instrument of social control).

**P9**: revises one category: self-assessment as a system endogenous assessment.

**P4**: **"In what sense do we believe in systems as units of learning. It's not just individuals that learn. Groups learn. Larger systems learn . . . it's the relations between the people and the tools (Latour)." In some sense over time the tools learn**

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**how to better serve the people as well as the people learning how to better use the tools, and integrate with one another.**
**Since larger systems do learn, what is the visible data of this learning, and for who and what is this kind of data useful? Can a system assess itself and learn to improve its performance as a system? Is individual v group a false dichotomy**

**P12**: Yes systems do learn
**P4**: how do they learn? Implicitly? Invisibly?
**P5**: Example of visiting YouMedia with Nichole. Suggestion to use stop motion of the space to study changes in the environment over time.

**P9**: We need to ask what do systems do? This is the point of reference against which to judge if something has been accomplished (references Hutchin's How a Cockpit Remembers its Speed). Learning is dependent on what a system does.
**P8**: Games are a finite space that as a consequence easily gives the player feedback about when and how they have moved outside of that space. This is not exactly the case in natural settings. **"There's a cheat code that we have in games that we don't have in a real setting."**
**Critique of Gee & Shaffer Do the game principles translate to real world?**

**P3**: **Disagrees with P8. Games and real are not that different. There are limitations everywhere, some are easier to perceive than others. Games highlight boundaries, "the failure mechanic is much more in your face."** Gamification of everything is dangerous (including Badges). Badges system takes an engineering problem solving approach rather than one grounded in address in societal issues.
**Danger with Badges: they stick with you your whole life, and you can be selective about which ones you display.**

**P4**: Badge privacy.
- Endorsement mechanics of the Badge system. Risk of centralized credentialing system that badges were meant to get away from. What alterntives?: community internal badge systems, only subgroups can endorse these badges
**P9**: Critique: For what purpose then if you already have endogenous assessment? Why the universal system?
**P8**: Mozilla says they just want to be able to display the community internal badges, not determine how those badges are awarded.
- What milestones do we give to kids to get from here to there (pathways, role trajectories)
Questions of Transfer

**P4**: **Communities are not bounded entities, "systems of interlocking flows of information, goods, trade, interaction," they have fuzzy boundaries, and are embedded within each other. This problematizes the notion that badges as "internal" to a community . . . but what about the relationship to other communities?**

**P5**: On the badges paper: odd that everything gets traded with everything in the badge system.
Problem: The badge project seems to be solely grounded in a technological dream vision of the future without social theory. Part of the technological dream is that you have grain size such that anything can be done with it (e.g. giving badge for being polite or designing a new interface - these things are treated as the same because each is framed as skills.
**P8**: thinks that the badges system is agnostic about grain size.

**P4**: Clarification: Value of badge is assessed by multiple assessors in their different contexts, but the way in which it's assessed is because the badge can be traced back to the holder and the granting authority, but also to the work or evidence for which it was granted in the first place and/or to the local criteria that lead to the giving of the badge.
**P13**: Worries that this is not just augmenting school credentialing - that one

danger is that people will not be allowed in the door to a job interview if they don't have the right set of badges in their portfolios.

**P3**: Badges as just a "shinier" version of the same old system. An "A" or cool looking badge?

**P7**: Contradictions:
- **It isn't that the badge is supposed to represent the letter "A." If you're in a knitting group, the letter "A" has no meaning. The idea is to legitimate a greater number of things, and at the same time the engineering of actually implementing this risks undoing the thing you set out to do in the first place. Almost everything we've been talking about involves the undoing of one aspect of a project by focusing too much on another aspect of a project. Calls for clarifying and articulating this point as a central task of the group.**
- **There's a teleology for games. Social engineering: adults do this children all the time. Adults have a teleology for their kids. In some ways this is necessary. But the adult's notion of the teleology for the kid is wrong. The world is changing in a way that one cannot rely on these old teleogies (i.e. unexpected outcomes).**
- **"A" and badge are not commensurable. They belong to different logics.**

**P5**: The badge could be the thing that marks you as being not-competent. It sets up an inside way to accrue symbols. You can only accrue these if you are in the practice itself. There is a certain necessary grain size to being a part of a community.

New video file
**P9**: Merit badges vs. participation badges
**P8**: We're talking about how these are used as assessments from the outside. But there is a value of badges personally for the kids. Parents may not be able to create the kinds of activities that badges motivate. **VALUE: This can empower and provide potential pathways and links for kids and families to access them.**

**KEY TENSION**
**P9**: The problem is that badges create the potential for more monitoring
**P8**: So how do you strike a balance between monitoring and opportunities?
**P9**: In this context the badge becomes a "trail marker"
**P11**: "and a guide." Sees this as a key responsibility for researchers and designers: **Creating Guides.**
**P4**: **See it as a catalogue of opportunities badges you can aspire to, the different things that our community engages that we think are valuable.**
**P8**: Emphasizes that Mozilla was initially concerned with the technical implementation of the system

**P7**: Knitting community dissertation research at LCHC as example. Who outside a setting like this would care about the badges? **Underlying assumption: transfer of experience from one context to another. Within a domain you could track learning, but how do we move laterally (transfer).**
**P13**: Why does the needle pointer need a badge?

**P8**: Do the kids want to hold or push (or do they even know how) the badge system? This is just a hypothesis. There doesn't seem to be an understanding of how this whole project will transpire.

**P9**: re: **P8**'s 30 site expansion, is the badges system going to be an organizing tool across sites. Is this going to be a thing where one school with more badges is better than one with less?

**P5**: 5d mazes as a trail: what is our record keeping for a pathway (learning trajectory)?
**P7**: Journey log as means of tracking learning in 5D.

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- The university, the parents - the spirit of what all these efforts are after is one of being able to answer to the people who are fronting the money, how do you talk to them about the value of the activities that the kids are participating in. E.G. Learning in these spaces: learning to collaborate with others, to take initiative, learning that when a problem gets difficult it doesn't mean that it's boring.
- Skills is one thing, practices another.
- Failure is built into the structure of schooling, but this is not exactly the case in say knitting or rapping.
- Google billboard example

**P4**: describes the billboard: recruitment ad.
**P10**: displays Google billboard example on shared screen

**P11: Acquisition of a child by a learning disability - acquisition of a child by a badge. Positioning and agency should be central to the recommendations we make in the white paper. The question of badges being a means for learners to develop their own identity. Choice has to be involved. The individual has to be able to buy into it if they want. We need build the evidence that this is a meaningful stipulation to make.**

**P4: Would like to see this recommendation; however, if the technology that supports the badges infrastructure is used, "it will develop its own economy and logic and will be completely out of the control of anybody."**

**P11**: Points out that some colleges of education develop a critical identity that is based on dissing the public schools that they are meant to serve. CONTRADICTION: how to serve and be critical at the same time.

**P4**: The report will include pros/cons of badges; just clarifies that this is the kind of phenomenon that takes on a life of its own.

<mark>10 minute break</mark>


<mark>**P4: agenda for the remainder of the meeting**</mark>
1. What approaches to assessment do each of the participants in the meeting use that are valuable and promising?
2. Show videos from participant projects that are relevant to the topic, and discuss issues of learning and assessment motivated by these examples.

**P4**: asks participants to say something about their approaches to assessment and documentation in each of their projects. Go around the room.

**P9**: YouSTEAM project.
- STEAM activities in which learners have to use experience and tools from prior activity to solve problems in a new activity, and continuing to build on this in a like manner progressively. E.G. Robot mini-golf: students learn to perform one action in hole 1 that they then need to accomplish action in hole 2, then hole 3 requires knowledge from hole 1 and 2 and so on. KEY QUESTION: **"The fact of being performatively being successful at the next level enough for assessment?"**
- Another component of the activity is to have students self document via video.

**P10**: asks about the nature of the video self-assessment
**P6**: E.G. Video of robot successfully navigating a course + potentially discussing how they accomplished this. Looking towards peer assessment.
**P9**: Student has to submit something to the community for the community to evaluate as evidence that the challenge has been met.

**P4**: Where is the openness of this - the choices, alternatives, and possibilities for innovation or unexpected learning?

**P9**: The variety of solutions to solving particular challenges (creativity). E.G. brute force strategy: developing code for each challenge vs. Planning ahead and embedding this in the code

Asking a student to write a poem, many poems could be written within that form.

**P4**: **Shifting from the notion that expert performances are somehow standardized and predictable to the notion that  expertise is the ability to solve new challenges in a domain is important**

**P8**: "Lurkers" - students in **P8**'s project via social networks have had access to the robot work discussed by **P9** and **P6**. Brings up the question of how give the lurkers access to engage in the robot activities.

**P9**: Sees potential collaboration between the two sites that is motivated in part by the aesthetic emphasis at **P8**'s site.

**P4**: Questions about **P9**'s project:
- Are the participants in this project embedded in a community where they're in touch with each other and looking at each other's accomplishments?

**P9**: Yes. Students being recruited are ones that have difficulties in STEM. Use of publically presented point system. Points are awarded for solving challenges and/or for doing so using elegant solutions (aesthetic).
- Aesthetic as a "non-negotiable dimension" - example of the iPod, iPad, both devices that have had long shelf lives because (implied) the aesthetic element is part of what makes kids care about theses devices.

**P4**: **"Whether putting the 'A' in STEAM provides additional resources for the assessment of learning?"**
- it must but how?

**P7**: It helps us get the kids involved in the activity.

**P5**: Portfolio metaphor comes from art.

**P7**: The case of Santa Cruz: the computerization of the portfolio

**P9**: Hampshire College

**P1**: Discusses personal experience with Hampshire College portfolios. Asks how to be able to allow the kids to take ownership over their portfolio

**P4**: **"you have to know how to mobilize the evidence of your learning to make it consequential"**

**P1**: **Is there some way to assess your increased knowledge as a learner?**

**P12**: **What does the aesthetic have to do with assessment. Yes, it can be used to attract the learner; however "if our conception of learning involves the sort of embodied capacities or task capacities that  we've been talking about then there has to be and aesthetic dimension to the evaluation because you can't appreciate those sorts of capacities unless you use some sort of judgment which requires aesthetic standards of some kind."**

**P11**: **Science doesn't have the variance that the artistic allows in the final product. The artistic is what differentiates two products that one might think of as the same in a scientific activity. It is an element that affords ownership for the learner.**
**- Example of experience studying with Aboriginal communities in Australia: not just being able to hunt and create the arrows, but that one would decorate the arrow. "There are whole routines and rituals around the progress elements that . . . kept in check the misuses of the rest of the STEM things that we do. There's some mediator to the STEM knowledge that we're gaining that the arts bring."**

**P5**: Example of impromptu inclusion of art in science projects at school

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**P4**: Science can be improved through by better aesthetic qualities in its representations. E.G. Edward Tufte's work. You can see more clearly the relationship between more variables when you draw on aesthetic principles to graph these relationships. The 'A' in STEAM affords additional dimensions for assessing understanding.

**P3**: The emotional component. Example from a study that he is finishing up in which the aesthetic was incorporated into activities in order to produce positive emotions. Finding: the positive emotions positively affected learning outcomes. **The role of the aesthetic in the organization and representation of knowledge on the one hand, and in the positive emotional state of the learner on the other hand.**

**P1**: Are there new 21st century skills? Information graphics example: kids that can/n't interpret these graphs (**P8**: and create these graphs)

**P9**: We need some conception of future value because parents, educators have understandings of the value of doing well in calculus, but not for e.g. video games - Badges may be able to motivate this for non-traditional learning.
**P5**: **Julian Sefton Green & Jennifer Roswell**: longitudinal study on how kids who were heavily in new media at a younger age and tracking what they are doing now.

**P4**: Asks **P5** to give his perspective on how in his work he knows that learning is taking place.
**P5**: - Social networks analysis to map person-to-person networks and the kinds of knowledges and practices that are exchanged over networks. Currently only looking at snapshots of networks to study resource distribution, but hoping to look at changes in the network over time. Other aspects: how to online and offline relations help shape these networks. What are the opportunities to learn, **what are the opportunities to be/become (e.g. how people sense themselves to be in these networks).**
- Digital story telling for example: **tracking versions of materials as they develop and having kids give retrospective and prospective accounts about what they are making doing, and interrupting this process at select points. RE-MIXING as a method. Example of kids being asked to perform a new voice over to a video in a way that matches with the other modalities.**
- Time. Interruption method (experience sampling + gps tracking) to try to get at what people are experiencing in their immediate experience.
**P9**: Example of headset cameras (researchers, colleagues of **P9** at NW) that can 'TiVo' the minute prior of an experience to capture those moments when people felt they learned.

**P4**: **The assessment potential of re-mixing, of having kids produce new kinds of objects while bringing in the aesthetic.**

**P13**: Work in after-school activities, studying moments when kids express interest in an activity or describe an activity as cool - in these moments the aesthetic component is integral.
- Studying how adults who help facilitate these after-school activities develop their sense of how they "know learning when they see it." Finding: the adults are primed to look for these moments on a schedule, that there is a particular moment in the structure of activities when learning is anticipated.
- studying the talk of people who have to argue for funding for informal learning activities. How do they demonstrate that learning, engagement, has occurred. Moore Foundation: psychometrics. Tension around what funders are pushing researchers to study.

**P12**: Discusses work with Mexican immigrants: Trying to make sense of what immigrants learn in their experience coming to and living in the US.
Focus on the heterogeneity of the immigrant community. Exponential growth of

immigrant community in one town over a decade. Shift from solo men to a family model. Also looking at the consequences of border enforcement: how it has worked to stop the cycling of immigrants back and forth from US to Mexico, and now immigrants have in a sense been trapped in the US. What effect does this have on existing dispositions and on immigrant capacities to acquire new dispositions. **This is a learning problem.**

**- Repertoire (linguistic anthropology): expertise within a speech community (with the speech community understood as an overlapping set of people with overlapping repertoires none of which are exactly the same). E.G. non-English speaking immigrants can still function in English using other semiotic means. So in public schools the task is not to exclude kids because they can't speak English, it is to expand the repertoire of the kids.**

**How is language used effectively to do things in the world. Assessment in this context would be a matter of picking up on these repertoires, their expansion.**

**P4**: **Elaborates on repertoire. "Expanding repertoires of practices in and across domains, and how you as a participant know that this is happening to you, how others know that it is happening  to and with you, and how an outsider can document that it has been happening."**

**P11**: Practices?

**P4**: Practices as a term to go beyond the linguistic.

**P11**:  Understand repertoire to mean a level of functioning that included practices, ideology, identities. Practice as one piece of repertoire. We need to be clear about this because it will determine what it is that we assess.

**P4**: Clarification: Practice can mean the local things that you do, or the larger systems of practices which include ideologies, etc.

**P9**: Notes different aspects in research of informal learning: document, develop assessments, embedding-implementation.

**Continuation of individual participant presentations of documentation and assessment strategies.**

**P3**: - Middle school after-school program for teaching game design to girls. Video observation method (Ricky Goldman, points of viewing method). **Key research question: What if we release a game into the wild, what can we learn from student's game play when we are not there? i.e. arranging to collect data from the game by having the game send the info to a server. How then should the activities in the game be structured and the assessment mechanics be designed so that what is observed in the logs of the game is meaningful?** How to scale such rich data? One approach this group is currently taking is to look at biometrics, EEG, galvanic skin response as means for interpreting what is happening when data points are collected.
- defining interactivity: behavioral, cognitive, and emotional components.
- no video (IRB restriction)

**P11**: Badges for America project.
- Concern about badges is balanced by the idea that the learner has control over badge acquisition.

**P1**: - issue of being a researcher and also working in a business (do kids like it, parents buy it, teachers adopt it?)
- issue of working for a corporation, institution: how they provide the mandate for the work.
- Danish TV project, green curriculum, cartoons. Kids watch the show but then they use Flickerlab software to create their own cartoon on the topics introduced in the show.
- gratuitous interactivity: not just loading the activity with all the interactive bells and whistles available because we can, we should really think about if an how these things drive the narrative, support the content, is it age-appropriate.
- Finds badges as terrifying: equates with European education system where learners have to decide career paths relatively early on.
- What are the risks of hyper-tracking?

**P8**: Research question: **What is the learning ecology, how you can support student learning across home, school, and after school contexts?**
**How do you pool data from the many spaces that kids find themselves? Not just what the kids create, but also how interactions with certain types of programs, mentors might motivate development and engagement.**
- analysis of participant produced media (portfolio)
- analysis of work over time (6th - 10th grade)
- tracking students participation in afterschool programs (e.g. using a social network across sites and monitoring this to track participation)
- challenge: how to use visualizations to understand the mass of data, how do you provide this info to the students so they can understand and monitor their own learning, how to use this data to hold the programs accountable?
- focus next year: using data visualization for the students, so they can be more selective in how they chose to do things

**P1**: (to **P8**) what is the data that is being visualized for/by the students?
**P8**: Social networks (online) analysis - looking at relationships in the network.

**P1**: How to get the kids to use the visualizations to be self-reflective.
**P8**: Highlight aspects of the program based on what applications students tend to use that may be useful to other afterschool programs.

**P10**: - issue of being able to identify learning retrospectively from video of single longitudinal case studies.
- issue of the negotiation between what the expert teachers (physicists in this case) expect from the learner, what counts as learning, and what the learners define as learning
- issue of not knowing ahead of time what the learning outcomes will be. Example of student in the physics telementoring activity who was asked to use animation tool to represent physics concepts, but in stead used the tool to create power point presentations w/o animation, and multiple-choice tests that then occasioned situations where this student could teach other students about the physics she had learned. This was unexpected and in some cases not approved of by the physicists.

**P7**: - out of school activities that have a location have affordances for tracking.
- re: **P1** work: how do you assess-grade the 6000 films created by the kids in her European project.
- another example from **P1**'s work of creating a digital hyper-linked book about girl who discovered the first dinosaur and how this opens up links to other learning opportunities. What can you find out about the utility of this book? E.G. which pages did they open? how much time spent on the page? what links explored?

**P9**: This is not big brother if you anonymize the data. Badges is scarier than doing this massive tracking of interactive tools use.
PBS interactive staff said: pbs kids videos were watched a billion times

**P3**: Educational data mining as a field. How far can you get with anonymous data?
**- Assessment mechanics example: someone lingers on a page they either got distracted or they are really processing, but how do you find out? How do you get the person to externalize their processing so that it is traceable?**
- Big Brother is at risk here when everybody is forced to do the badges thing.

**P1**: using tracking data to scaffold - ok.
VS: Is the badges thing going to become just another system (like school) that the kids will need to negotiate (yet another exclusion mechanism)?
**P9**: Kids would just adapt to the new badges system - they would be leveraging of adult resources.
**P8**: But what if you provide the kids access to these adult resources, can you develop their abilities to seek, find and use these resources?
Question: how do you build on the fact that the internet is making things more accessible, but figuring out how to make these things accessible in bite-size pieces that people can actually take in?

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VR: Question of efficiency underlying all of these projects.
- There is no one particular moment of learning. It's about a lot of moments that chaotically link together and are idiosyncratic to the person.
- We want to be able to index participation in ways that say that the person has learned (a new repertoire is being used) and that we want to argue that this is good enough.

**P4**: **- the purpose of assessment and documentation is not just to say that someone has learned something, but also that this approach or activity is also responsible for improving things, the system. We need to think about how to make assessment that is useful to help the system improve, in fact the current assessment regime is driving the system down. Standardized tests are too superficial, doesn't tell us about student understanding, the problems or obstacles, how students manage to get**

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the right answers, etc.
- So we need to consider changes in the assessment system that will:
1. Inform us what works for whom
2. How much progress students may be making through the given resources of the system
3. also tell us something about how to make the system more effective for a wider range of uses.

**P13**:-but we need wide scale data to figure out how assessment can help the system.
**P4**: you need both in-depth case studies and large-scale data. The large-scale data tells you broadly what is happening, in-depth studies tell you why and how.
**P8**: example of activity theory based work she did with Louis Gomez. They had enough qualitative, but not enough quantitative. So let's develop partnerships that bring together these two perspectives.
**P4**: People have tried this 20-30 years, but each approach tends to go its separate ways. No synergy

**P11**: Example of project: 3 content areas (math, science, language arts), 30 control 30 experimental classrooms in area, looking at two different curricula. Looking at positioning of persons in each classroom. Comparing old curriculum with new, theory-grounded curriculum: "The linkage between these two conditions is supposed to be the theoretical motivation that underpins the design choices . . . if we can look at the  relationship between mechanism and outcome data in both [the control and the experimental] implementation with the overlap being the theoretical motivation of that and showing how that produced the same mechanism that produced the same outcomes, I think at some level we are starting to get at that kind of thing" (i.e. useful conversation between qualitative and quantitative data)
**P4**: **The next step here would be to collect a different kind of large scale quantitative data based on what your previous  iteration had shown was what you needed to know. At the moment we collect the same data (standardized assessment & attendance) regardless of our questions.**

**P7**: Notes the slip back into the formal realm in **P11**'s bringing up of his large-scale study. In the informal spaces we don't have the kind of order and structure that we do in formal ones.
- examples of the 5D - this is an example of a system that feeds back on itself.

**P11**: worries about the case study as just cherry picking, so he wants the case study to work as an explanatory device for the outcomes of the larger scale studies.
**P7**: example of the kids having to explain the afterschool site to others - using communicative practices, people having to explain what they're doing.

**P4**: **If we are thinking of informal education . . . then what is the analogue of the large-scale quantitative component. So if we believe, and I don't believe I do, that there is a basic synergy between the large scale quantitative analysis and the in-depth ethnography analysis, then when we move  outside of a situation where we can have 90 classrooms to collect the quantitative to the informal settings . . . then what plays the role of the role of the large scale quantitative component?**

**P12**: **In informal activities  there are a whole range of things you can count that could potentially be relevant. You don't want to start by thinking what's an analogue for test scores, but by looking at what kinds of things you could count that might be useful. There's nothing wrong with counting things, but what's wrong is that it gets reduced to a particular kind of counting.**
**P4**: **Yes, but can I count enough of the relevant instances to get the power to do quantitative analysis. The hypothetical dilemma: in order to count things on a scale where you can use statistical analysis, the things have to be "the same" from one instance to the next. But the general characteristic of the informal learning programs that we're interested in is that it is not obvious that there are whole**

**lot of things that are the same from one instance to the next. They appear to be unique and different.**

**P7**: maybe by looking at low-level stuff like amount of participation in a practice that is value as a starting point
**P3**:  programmers in his group are allowed to tag specific interactions with what they believe the interaction represents, but they can also retag those tags later to register changes in understanding of the interaction. This is a question of having data that is sufficiently meaningful to get at the questions we are trying to address.
**P1**: turns to **P3** categories of behavioral, cognitive, and emotion.
- talking to business people: hard skills, soft skills, and engagement.
**P3**: We are operating at a different level. The categories **P1** introduced would require me to look at the social and the cultural. My focus is at the level of human computer interaction.

**P11**: Vermont commune personal history and coming back to the social and political goals of that history.
- Wants to do productive work at scale. It's easy to get caught up in the rhetoric of "every context is totally different in a way that makes it impassible  to design an intervention that's going to have consistent value across different spaces." We need to have some better accountability - we are critical theorists who believe in agency - but we also want our innovations in this [informal] spaces. We can't just say that we can't provide reasonable cross invariant claims." This is our challenge otherwise we won't bring about change.
**P7**: So if something sells well, that's a good enough metric of success of the innovation - one could declare success and go home.
Everything is going to be commercialized.
**P11**: believes this meeting is not being commercialized
**P7**: yes it is. Education is being commercialized.
**P11**: Gameification is not theoretically grounded and it is going forward so we need 'ours' get on that-
**P1**: - but that is why it's important.

**P1**: Motivates looking at her European Climate Cartoon study example: climatecartoons.org
we watch video at: http://climatecartoons.org/screeningRoom.php?toon=k0001

**P1**: key realization: large degree of scaffolding necessary for the kids to produce these films, then going back and seeing how to build that scaffolding into the online experience.

**P4**: -this brings to mind issues of scaling up and out
1. what do you need to know in order to scale up something that's been successful in a local environment?
2. Should you scale it up?
3. When you do scale it up, if it's going to continue to be effective, is it more important that it be done the same way across wider sites or is it more important that it be localizable so that it can  adapt to the different needs and conditions across a wider  range of sites.
Design for adaptability: how do we design the scaled up version in such a way that it can flexibly adapt to the wider range of conditions that we want it to thrive in?

**P7**: i.e. if you create a product, what are the range of environments in which this product comes to be a part of what it is that people are doing.
**P11**: This is **P8**'s challenge.

**P7**: re: 5D project examining why good innovations fail: the good thing at one point may become the bad thing, plus the people affiliated with that thing become "bad."

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**P5**: How do think about participation. What is a stand in for participation in say a survey.
The process of making survey data was useful even if the survey didn't provide useful answers

**P12**: the environment movie points to **product based assessment.**
**P9**: YouSTEAM project is going in this direction
**P4**: When you believe engaging in productive activity is a powerful form of learning, then start doing assessment on the products that are produced.
We haven't had a tradition of product assessment (other than writing). Doing product assessment at a large scale is difficult.

**P8**: Who needs to analyze the student's work? A 6th grader who is just learning to make video does not need to have her work evaluated by a famous filmmaker.
**P1**: **crowd sourcing as a method of assessment, and peer-to-peer evaluation**
**P4**: This is one positive thing about Badges, but only locally, a peer evaluation system that is locally based (by local standards)
**P9**: Agreement in the room that local versions are valuable.

**P1**: Are there new 21st century skills?
- example of USA today vs. Paul Krugman. But there are big idea conveyed in USA today for people who couldn't get what Paul Krugman is saying
- what if: assessing a kid's ability to visualize a complicated idea
- Should be automating this (i.e. specifying this level of engagement)?
**P11**: not just visualizing, but making it meaningful and useful for accomplishing something.

**5 min break**

## Video examples

**P5**: mashup as assessment example - cnn interactive electoral map. Using students voice over approach as a means of assessing their interpretive process.
Nate Phillips PhD student will be using this data. 9th 10th graders, asked them to analyze videos of the electoral map activity

We watch the video

next we watch a video of the kids changing the voice of this same video, given the guidelines: only change the vocal channel; make the vocal channel correspond in a meaningful way to  what is happening visually; must have a coherent narrative.

Next we watch the student's final product

**P5**: so what are the students understanding about the maps, their meanings and their interactions such that the voice-over is sensible and functions as a critical distancing from another meaning possibility that could be included? How do the kids recognize this?
how do mash-ups tell us about the kid's different levels of thinking?

**P1**: iPad connection


**P9**: Dimension of assessment in this video:
1. the (21st century) skill of being able to embody the multimodal display.
"Attachment": the degree to which you could attach your narrative to all that is visible in the video
2. "creative transformation": search and replace

- Then you could give peers these dimensions and have them assess-score these dimensions and see how aligned they would be to others.

**P4**: Suggestion - have a second task on the original video of adding music to the video (a popular approach that kids use these days) because it changes the meaning or counterpoints it (i.e. another interpretive approach). This could be assessment evidence for interpretation.

**P9**: bad lip reading example online.

We watch an example

**P7**: Are these 21st century skills? New kinds of practices?

**P5**: Mash-up is more naturally occurring than badlipreading.com though

**P7**: Dewey - "create" (something that hasn't been made before) and "make"

**P4**: **The issue of cultural change: "by and large our assessment paradigm is to measure how well people are conforming with the culture of the past and doesn't deal with those aspects of contemporary culture which are not already valued and validated (VIDEO CHANGE) by some tradition and authority, much less trying to project what the valuable skills are going to be 20, 40 years from now . . . whereas young people are very much concerned with that. They're going to spend their lives needing and using the skills that will be the valued skills 20, 40 years from now . . . and so they have a much higher priority of identifying and mastering the skills that their peers value and that they think are likely to become or that they want to see become the valued skills of the future and to hell with the skills that we found to be valuable 40 years ago."**

**P7**: But . . . what about the cultural historical infrastructure that underlies the technologies that the current generation takes for granted.

**P4**: What part of this will remain part of the infrastructure - what part is ideologically valued and can be done without, or what will no longer as valuable. . . .
**P7**: Spoken/written language or mathematics won't go away
**P4**: 20 years from now no one will need to know Calculus
**P9**: Algebra for sure
**P7**: But someone needs to program the machine
**P9**: a developmental process of successive black boxes opening. How would you then be the producer of the technical object one layer below
**P5**: example of teaching typing
**P4**: 15 years from now voice recognition kills typing

**P8**: What are going to be the literacies that are going to be neccessary in a learner's lifetime. We're making a guess
**P4**: **We tend to make too conservative guesses. We are not paying attention to in the curriculum is the culture that the kids are producing today which will be the culture of tomorrow.**

**P4**: Harvard entrance exam example. Reflects a totally different view of what knowledge is worth having.
**P3**: What skills come with the artifacts we create? What skills underlie our understanding of the world around us. **The question is not can I fix something, but do I care about how to do it? Do I care how things work?**
**P9**: Different people have different leanings with respect to what they would care about.
**P4**: Things become black boxed, but these things matter to fewer and fewer people.

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But people now start to worry how other things work, maybe not the computer but how to use Photoshop on the computer

**P13**: In the museum & after-school world the focus now is more on doing and tinkering rather than deep conceptual work.
**P1**: Daughter example: only interacts with peers via twitter feeds.


**P4**: People in their 20s and teens don't see tweets as an obstacle to communication . . .
**If we are thinking about new forms of assessment then how do we do assessment for things that have not been valued in the past but are valued in the contemporary culture of the youth.**

**P7**: What does it mean if just focus on one thing over the rest (e.g. only reading, writing, math)? We are standing on a mountain of prior cultural knowledge - what are we going to do now? Levitate
**P4**: I think we are. Things like this will be taken over by machines.
**P3**: The singularity

**P8**: The final product might be in a different medium. Making new media requires traditional literacy.
**P4**: **What elements of older literacies will continue to be of value?**
**P9**: Those that current productive practices see as valuable
**P4**: Passing a 12th grade reading comp test now does not assess what is important about contemporary literacy.

**P8**: **The importance of audience. How do we create more audience consciousness and connect this with assessment? Especially because this is more bound up in identity.**
**P4**: **Crowd sourcing model of evaluation fits here. Fan fiction example (great writing and great feedback is motivated by an audience that kids value). The problem: how do you take the benefits of the peer audience community and integrate it with the school model that has a hierarchical**

break to discuss logistics

**P8** video examples; see:  oboc-amercy.tumblr.com

- Kids at YouMedia producing a variety of media related to Toni Morrison's "A Mercy" (e.g. spoken word, book covers, video). You see the youth drawing on their products as means of identity development and at the same time they are drawing heavily on traditional literacy to produce these media (the students have to read Toni Morrison, e.g.)

We watch the video example

**P8**:  Shows a table representing for one woman's hours spent and different media to produce her final product.


**P8**:  presents a visualization of one student's work, what she participated in over time, where she uploads and shares.] For we are taking this quantitative examples and tag it on to actual work history that lead there to develop our understanding of how we get there. We're now thinking what kind of badges would she have gotten that would display this information.
- The final thing we do is look at her in the social network over 2 years. She viewed herself as a photographer, she spent 49% of her time uploading, 29% viewing others. The older kids have more of an identity and are doing particular work, while middle school kids do more dabbling. So how do you merge those kinds of data. How do you take what you know about the quality of the program and what is going on over time and space?

**P4**: comments on **P8**'s chart. Sees it as useful as a tool for tracking histories. The graph gives us a snapshot, the student video shows us the kids' communities understanding of the things they are doing.
**- how do we get a sense of the community's contributions to the development of the media? The community is learning something about A Mercy, just as the individuals are?**

**P5**: - the historical dimension
- parallel pedagogy: if you step one level up you see the same practices in different media. E.G. reading Toni Morrison involves point of view, but this is also involved in creating videos. Both afford learning about voice.

**P8**: The problem of using new media for assessment is that the kids need to first understand how to use the media before they can articulate their ideas in that medium.

**P4**: Smagorinsky example: reader response to literature through alternative media (e.g. make music about a book you read).

**P11** video examples

- videos of girls trying to highlight the difference between procedural engagement and consequential engagement and critical and conceptual engagement.
- this example is procedural

- example of critical engagement

Example of game that motivates persuasive writing. Game is organized around getting kids to understand the relationship between good evidence, reason and thesis.

**P11**: transformational play (lit available online)
- games allow the inhabiting of an identity. The difference here is between knowing something as someone removed or knowing something from the perspective of the person who needs to use this knowledge to accomplish something (ZPD)

**P5**: What role does the persuasive argument have in the game?
**P11**: the mayor of the town in the game recruits you to publish an article in the local paper about whether or not a serum should be made to attack the plague in the game.
**P9**: is the evidence out in the environment available to be assembled such that you could make a good argument or for stopping the doctor from making the serum?
**P11**: you can have a badly written , but coherent argument

**Hickey Model Slide: Illuminative Data slide**

**P4**: Can you construct productive interactions among the different squares in this slide
**P11**: Badge example (slide). Some Badges computer reviewed, some teacher reviewed, some peer reviewed.

**P11**: ends with statement from Jim Gee: "There's a growing bac**P5**ash to badges. This is typical of academics. The world is always (???) and any intervention will be co-opted and become  evil so we sit on the sidelines and let others seek change. The others are  just the ones who will make evil and fulfill our prophecies of doom, leaving the academics with tenure and the kids screwed once again. Eating the apple in Eden brought Adam and Eve sex and death. Death is a bummer, but I'm not trading in the deal myself since a life without sex is death. Those who venture into the world to make change get covered in mud, it's a battle, but if you watch Monday night football, you know the disdain that John Madden has for players who have

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clean uniforms."

Lunch arrives

**P8**: plan for continued conversation?
**P4**: Wiki and the possibility of providing MacArthur with video examples.

End with logistical talk about the next meeting.